

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (original) A coated optical fiber comprising:  
an optical fiber and a radiation cured coating, wherein the radiation cured coating on the optical fiber comprises an oligomer wherein the oligomer is formed from a reaction comprising a polyol having "m" hydroxyl functional groups, wherein "n" hydroxyl groups of said polyol are terminated in forming the oligomer and "m" is greater than "n".
2. (original) The coated optical fiber in claim 1, wherein the radiation cured coating further comprises a second oligomer.
3. (original) The coated optical fiber in claim 1, wherein "m" - "n"  $\geq$  about 1.
4. (original) The coated optical fiber in claim 3, wherein "m"  $\leq$  4.
5. (previously presented) The coated optical fiber in claim 1, wherein a number average molecular weight of said oligomer is at least 6000 Daltons.
6. (previously presented) The coated optical fiber in claim, 1 wherein the oligomer is a (meth)acrylated urethane oligomer.
7. (previously presented) The coated optical fiber in claim 1, wherein the radiation cured coating has a T<sub>g</sub> of less than about - 30°C.
8. (previously presented) The coated optical fiber in claim 1, wherein the radiation cured coating includes a monomer having a functional group or groups selected from the group consisting of acrylates, methacrylates, acrylamides, N-vinyl amides, styrenes, vinyl ethers, vinyl esters, acid esters and combinations thereof.

9. (original) The coated optical fiber in claim 8, wherein the monomer has a viscosity of less than about 500 centipoise and the monomer is an acrylate.
10. (previously presented) The coated optical fiber in claim 1, wherein the radiation cured coating has a Young's modulus of less than about 1.2 MPa.
11. (previously presented) The coated optical fiber in claim 1, wherein the radiation cured coating has a Young's modulus of less than about 1.0 MPa.
12. (previously presented) The coated optical fiber in claim 1, wherein the radiation cured coating has a Young's modulus of about 0.85 MPa or less.
13. (previously presented) The coated optical fiber in claim 1, wherein the radiation cured coating has an elongation at break of greater than about 100 %.
14. (previously presented) The coated optical fiber in claim 1, wherein the coated optical fiber has a micro-bend attenuation as measured by the LLWM test of less than about 0.1 dB/m at a wavelength of 1310 nm, of less than about 0.15 dB/m at a wavelength of 1550 nm, and of less than about 0.25 dB/m at a wavelength of 1625 nm.
15. (original) The coated optical fiber in claim 14, wherein the coated optical fiber has a micro-bend attenuation as measured by the EDM test of less than about 0.151 (dB/km)/%strain at a wavelength of 1310 nm, of less than about 0.75 (dB/km)/%strain at a wavelength of 1550 nm, and of less than about 1.4 (dB/km)/%strain at a wavelength of 1625 nm.
16. (previously presented) The coated optical fiber in claim 1, wherein the optical fiber has an effective area greater than about  $70 \mu\text{m}^2$ , said effective area measured at a wavelength of 1550 nm, and the coated optical fiber has a micro-bend attenuation as measured by the LLWM test of less than about 0.1 dB/m at a wavelength of 1310 nm,

of less than about 0.3 dB/m at a wavelength of 1550 nm, and of less than about 1.0 dB/m at a wavelength of 1625 nm.

17. (original) The coated optical fiber in claim 16, wherein the optical fiber has an effective area greater than about  $70 \mu\text{m}^2$ , said effective area measured at a wavelength of 1550 nm, and the coated optical fiber has a micro-bend attenuation as measured by the EDM test of less than about 0.151 (dB/km)/%strain at a wavelength of 1310 nm, of less than about 2.0 (dB/km)/%strain at a wavelength of 1550 nm, and of less than about 4.0 (dB/km)/%strain at a wavelength of 1625 nm.

18. (previously presented) A coated optical fiber comprising:

an optical fiber, a radiation cured primary coating and a radiation cured secondary coating, wherein the radiation cured primary coating comprises an oligomer wherein the oligomer is formed from a reaction comprising a polyol having "m" hydroxyl functional groups, wherein "n" hydroxyl groups of said polyol are terminated in forming the oligomer and "m" is greater than "n", and has a  $T_g$  of less than about  $-30^\circ\text{C}$ , a Young's modulus of less than about 1.0 MPa, a tensile strength of at least 50 % of the modulus and an elongation to break of at least about 100 %.

19. (canceled)

20. (previously presented) The coated optical fiber in claim 18, wherein the radiation cured primary coating has a  $T_g$  of less than about  $-40^\circ\text{C}$ , a Young's modulus of less than about 1.0 MPa, a tensile strength of at least 50 % of the modulus and an elongation to break of at least about 100 %.

21. (previously presented) The coated optical fiber in claim 18, wherein the radiation cured primary coating comprises an oligomer wherein a number average molecular weight of said oligomer is at least 6000 Daltons.

22. (previously presented) The coated optical fiber in claim 18, wherein the radiation cured secondary coating has a Young's modulus greater than the Young's modulus of the radiation cured primary coating.

23. (original) The coated optical fiber in claim 22, wherein the radiation cured secondary coating has a Young's modulus of greater than about 600 Mpa.

24. (previously presented) The coated optical fiber in claim 18, wherein "m" – "n"  $\geq$  about 1 and "m"  $\leq$  about 4.

25. (original) A coated optical fiber comprising:

- an optical fiber,
- a radiation cured primary coating and
- a radiation cured secondary coating

wherein the radiation cured primary coating is the cured product of a bulk composition comprising:

- an acrylated urethane oligomer,
- an ethylenically unsaturated monomer and
- a photoinitiator;

wherein the oligomer is formed from a reaction comprising a polyol having "m" hydroxyl functional groups, wherein "n" hydroxyl groups of said polyol are terminated in forming the oligomer and "m" is greater than "n", and said polyol has a number average molecular weight of at least 4000 Daltons;

wherein the ethylenically unsaturated monomer has a number average molecular weight of less than about 1000 Daltons;

wherein the radiation cured primary coating has a Young's modulus of less than about 1.0 MPa, a  $T_g$  of less than about -30 °C, an elongation to break of at least about 100%, and a tensile strength of at least 50% of the Young's modulus; and

wherein the cured radiation curable secondary coating has a Young's modulus of greater than about 600 MPa.

26. (original) The coated optical fiber in claim 25, wherein "m" – "n"  $\geq$  about 1 and "m"  $\leq$  about 4.

27. (previously presented) The coated optical fiber in claim 25, wherein the radiation cured coating further comprises a second oligomer.

28. (previously presented) The coated optical fiber in claim 25, wherein the ethylenically unsaturated monomer is selected from the group of a mono-functional monomer, a poly-functional monomer, and mixtures thereof.

29. (previously presented) The coated optical fiber in claim 25, wherein the ethylenically unsaturated monomer comprises a mono-functional monomer having a functional group selected from the group consisting of acrylates, methacrylates, acrylamides, N-vinyl amides, styrenes, vinyl ethers, vinyl esters, acid esters and combinations thereof.

30. (previously presented) The coated optical fiber in claim 25, wherein the monomer has a viscosity of less than about 500 centipoise and the monomer is an acrylate.

31. (previously presented) The coated optical fiber in claim 25, wherein the radiation cured primary coating has a  $T_g$  of less than about  $-40^\circ\text{C}$ .

32. (previously presented) The coated optical fiber in claim 25, wherein the acrylated urethane oligomer is present in an amount from about 40 to about 65 weight percent, the ethylenically unsaturated monomer is present in an amount from about 60 to about 20 weight percent, and the photoinitiator is present in an amount from about 0.1 to about 10 weight percent of a bulk radiation curable primary coating composition.

33. (original) A coated optical fiber comprising:  
an optical fiber,  
a radiation cured primary coating and

a radiation cured secondary coating  
wherein the coated optical fiber has a micro-bend attenuation as measured by the LLWM test of less than about 0.3 dB/m at a wavelength of 1310 nm, of less than about 0.35 dB/m at a wavelength of 1550 nm, and of less than about 0.55 dB/m at a wavelength of 1625 nm.

34. (original) The coated optical fiber in claim 33, wherein the radiation cured primary coating is the cured product of a bulk composition comprising:

an acrylated urethane oligomer,  
an ethylenically unsaturated monomer and  
a photoinitiator;

wherein the oligomer is formed from a reaction comprising a polyol having "m" hydroxyl functional groups, wherein "n" hydroxyl groups of said polyol are terminated in forming the oligomer and "m" is greater than "n".

35. (original) The coated optical fiber in claim 34, wherein the oligomer has a number average molecular weight of at least 4000 Daltons.

36. (previously presented) The coated optical fiber in claim 34, wherein the ethylenically unsaturated monomer has a number average molecular weight of less than about 1000 Daltons.

37. (previously presented) The coated optical fiber in claim 34, wherein the radiation cured primary coating has a Young's modulus of less than about 1.0 MPa, and a  $T_g$  of less than about -40 °C.

38. (previously presented) The coated optical fiber in claim 34, wherein the cured radiation curable secondary coating has a Young's modulus of greater than about 600 MPa.

39. (original) The coated optical fiber in claim 33, wherein the coated optical fiber has a micro-bend attenuation as measured by the LLWM test of less than about 0.1

dB/m at a wavelength of 1310 nm, of less than about 0.15 dB/m at a wavelength of 1550 nm, and of less than about 0.25 dB/m at a wavelength of 1625 nm.

40. (original) The coated optical fiber in claim 39, wherein the coated optical fiber has a micro-bend attenuation as measured by the EDM test of less than about 0.151 (dB/km)/%strain at a wavelength of 1310 nm, of less than about 0.75 (dB/km)/%strain at a wavelength of 1550 nm, and of less than about 1.4 (dB/km)/%strain at a wavelength of 1625 nm.

41. (original) The coated optical fiber in claim 33, wherein the optical fiber has an effective area greater than about  $70 \mu\text{m}^2$ , said effective area measured at a wavelength of 1550 nm, and the coated optical fiber has a micro-bend attenuation as measured by the LLWM test of less than about 0.1 dB/m at a wavelength of 1310 nm, of less than about 0.3 dB/m at a wavelength of 1550 nm, and of less than about 1.0 dB/m at a wavelength of 1625 nm.

42. (original) The coated optical fiber in claim 41, wherein the optical fiber has an effective area greater than about  $70 \mu\text{m}^2$ , said effective area measured at a wavelength of 1550 nm, and the coated optical fiber has a micro-bend attenuation as measured by the EDM test of less than about 0.151 (dB/km)/%strain at a wavelength of 1310 nm, of less than about 2.0 (dB/km)/%strain at a wavelength of 1550 nm, and of less than about 4.0 (dB/km)/%strain at a wavelength of 1625 nm.

43. (withdrawn) A coating for an optical fiber comprising:

a radiation curable primary coating

wherein the radiation curable primary coating comprises an oligomer wherein the oligomer is formed from a reaction comprising a polyol having "m" hydroxyl functional groups, wherein "n" hydroxyl groups of said polyol are terminated in forming the oligomer and "m" is greater than "n".

44. (withdrawn) The coating in claim 43, wherein the radiation cured coating further comprises a second oligomer.

45. (withdrawn) The coating in claim 43, wherein "m" – "n"  $\geq$  about 1.
46. (withdrawn) The coating in claim 43, wherein  $m \leq$  about 4.
47. (withdrawn) The coating in claim 43, wherein a number average molecular weight of said oligomer is at least 6000 Daltons.
48. (withdrawn) The coating in claim 43, wherein the oligomer is a (meth)acrylate urethane oligomer.
49. (withdrawn) The coating in claim 43, wherein the radiation cured coating has a  $T_g$  of less than about - 40°C.
50. (withdrawn) The coating in claim 43, wherein the radiation cured coating includes a monomer having a functional group or groups selected from the group consisting of acrylates, methacrylates, acrylamides, N-vinyl amides, styrenes, vinyl ethers, vinyl esters, acid esters and combinations thereof.
51. (withdrawn) The coating in claim 50, wherein the monomer has a viscosity of less than about 500 centipoise and the monomer is an acrylate.
52. (withdrawn) The coating in claim 43, wherein the radiation cured coating has a Young's modulus of less than about 0.85 MPa.
53. (withdrawn) The coating in claim 43, wherein the radiation cured coating has an elongation at break of greater than about 100 %.
54. (withdrawn) A method of coating an optical fiber comprising the steps of:  
    (a) drawing an optical fiber comprising a core and a cladding;  
    (b) coating the optical fiber with a radiation curable coating; and



(c) irradiating the optical fiber at a dose level of from about  $0.5 \text{ J/cm}^2$  to about  $1.0 \text{ J/cm}^2$ ;

wherein the coated optical fiber has a micro-bend attenuation as measured by the LLWM test of less than about 0.3 dB/m at a wavelength of 1310 nm, of less than about 0.35 dB/m at a wavelength of 1550 nm, and of less than about 0.55 dB/m at a wavelength of 1625 nm.

55. (withdrawn) The method in claim 54, wherein the radiation curable coating comprises an oligomer wherein the oligomer is formed from a reaction comprising a polyol having "m" hydroxyl functional groups, wherein "n" hydroxyl groups of said polyol are terminated in forming the oligomer and "m" is greater than "n".

56. (withdrawn) The method in claim 54, wherein the radiation cured coating further comprises a second oligomer.

57. (withdrawn) The method in claim 54, wherein  $"m" - "n" \geq \text{about } 1$ .

58. (withdrawn) The method in claim 54, wherein  $m \leq \text{about } 4$ .

59. (withdrawn) The method in claim 54, wherein the coated optical fiber has a micro-bend attenuation as measured by the LLWM test of less than about 0.1 dB/m at a wavelength of 1310 nm, of less than about 0.15 dB/m at a wavelength of 1550 nm, and of less than about 0.25 dB/m at a wavelength of 1625 nm.

60. (withdrawn) The method in claim 59, wherein the coated optical fiber has a micro-bend attenuation as measured by the EDM test of less than about 0.151 (dB/km)/%strain at a wavelength of 1310 nm, of less than about 0.75 (dB/km)/%strain at a wavelength of 1550 nm, and of less than about 1.4 (dB/km)/%strain at a wavelength of 1625 nm.

61. (withdrawn) The method in claim 54, wherein the optical fiber has an effective area greater than about  $70 \text{ } \mu\text{m}^2$ , said effective area measured at a wavelength of 1550

nm, and the coated optical fiber has a micro-bend attenuation as measured by the LLWM test of less than about 0.1 dB/m at a wavelength of 1310 nm, of less than about 0.3 dB/m at a wavelength of 1550 nm, and of less than about 1.0 dB/m at a wavelength of 1625 nm.

62. (withdrawn) The method in claim 61, wherein the optical fiber has an effective area greater than about  $70 \mu\text{m}^2$ , said effective area measured at a wavelength of 1550 nm, and the coated optical fiber has a micro-bend attenuation as measured by the EDM test of less than about 0.151 (dB/km)/%strain at a wavelength of 1310 nm, of less than about 2.0 (dB/km)/%strain at a wavelength of 1550 nm, and of less than about 4.0 (dB/km)/%strain at a wavelength of 1625 nm.

63. (withdrawn) A method of making an optical fiber coating comprising the steps of:

- (a) reacting an isocyanate with an ethylenically unsaturated compound having OH, SH or  $\text{NH}_2$  groups to form an intermediate;
- (b) reacting the intermediate with a polyol having "m" hydroxyl groups wherein "n" hydroxyl groups of the polyol are terminated by the intermediate to form an oligomer with "m" – "n" free hydroxyl groups; and
- (c) blending the oligomer with a monomer and a photoinitiator, wherein "m" is greater than "n".

64. (withdrawn) The method in claim 63, wherein "m" – "n"  $\geq$  about 1.

65. (withdrawn) The method in claim 63, wherein  $m \leq$  about 4

66. (withdrawn) The method in claim 63, wherein the formed oligomer has a number average molecular weight of at least 6000 Dalton.

67. (withdrawn) The method in claim 63, wherein the monomer has a functional group or groups selected from the group consisting of acrylates, methacrylates,

acrylamides, N-vinyl amides, styrenes, vinyl ethers, vinyl esters, acid esters and combinations thereof.

68. (withdrawn) The method in claim 63, wherein the monomer has a viscosity of less than about 500 centipoise and the monomer is an acrylate.

69. (withdrawn) The method in claim 63, wherein the ethylenically unsaturated compound which is reacted with the isocyanate has one equivalent of OH, SH or NH<sub>2</sub> for every two equivalents of NCO of the isocyanate.

70. (withdrawn) A method of making an oligomer for an optical fiber coating comprising the steps of :

- (a) reacting an isocyanate with an ethylenically unsaturated compound having OH, SH or NH<sub>2</sub> groups to form an intermediate with some free isocyanate groups; and
  - (b) reacting the intermediate with a polyol having "m" hydroxyl groups wherein "n" hydroxyl groups of the polyol are terminated by the intermediate to form an oligomer with "m" – "n" free hydroxyl groups,
- wherein "m" is greater than "n".

71. (withdrawn) The method in claim 70, wherein "m" – "n" ≥ about 1.

72. (withdrawn) The method in claim 70, wherein  $m \leq$  about 4

73. (withdrawn) The method in claim 70, wherein the formed oligomer has a number average molecular weight of at least 6000 Dalton.

74. (withdrawn) The method in claim 70, wherein the ethylenically unsaturated compound which is reacted with the isocyanate has one equivalent of OH, SH or NH<sub>2</sub> for every two equivalents of NCO of the isocyanate.

75. (original) The coated optical fiber in claim 6, wherein the radiation cured coating has a  $T_g$  of less than about  $-35^{\circ}\text{C}$ .

76. (original) The coated optical fiber in claim 6, wherein the radiation cured coating has a  $T_g$  of less than about  $-40^{\circ}\text{C}$ .

77. (original) The coated optical fiber in claim 13, wherein the coated optical fiber has a micro-bend attenuation as measured by the LLWM test of less than about 0.3 dB/m at a wavelength of 1310 nm, of less than about 0.35 dB/m at a wavelength of 1550 nm, and of less than about 0.55 dB/m at a wavelength of 1625 nm.

78. (original) The coated optical fiber in claim 77, wherein the coated optical fiber has a micro-bend attenuation as measured by the EDM test of less than about 0.35 (dB/km)/%strain at a wavelength of 1310 nm, of less than about 1.1 (dB/km)/%strain at a wavelength of 1550 nm, and of less than about 2.0 (dB/km)/%strain at a wavelength of 1625 nm.